

## CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

### Listing of Claims:

Claim 1 (previously presented): A method for determining the topology of a network when a network tree, built from data relating to discovered devices of the network, includes one or more unresolved branches, the method comprising:

for each unresolved branch of the network tree, attempting to determine the type of each of the discovered network devices on the branch,

if the type of each discovered network device on the branch is determined to be a non-connecting network device, inferring that an undiscovered connecting device is present on the branch; and

if the type of at least one discovered network device on the branch is not a non-connecting network device, leaving the topology of the branch unresolved.

Claim 2 (previously presented): The method as claimed in claim 1 wherein, if an undiscovered network device is inferred to be present on a branch, the method further comprises the step of:

resolving the topology of the branch by determining that the discovered network devices on the branch are connected to respective ports of the inferred connecting device.

Claim 3 (previously presented): The method as claimed in claim 1 further comprising the step of:

presenting the determined network topology as a network map, the map comprising icons representing network devices and lines representing network links, wherein the inferred connecting device is represented differently from a discovered connecting device.

Claim 4 (previously presented): The method as claimed in claim 1 wherein the received data comprises address table data for the ports of one or more managed

connecting devices on the network, the address table data including the identity of each said port and the identity of other network devices which the port has learned.

Claim 5 (previously presented): The method as claimed in claim 4 further comprising the steps, in building the network tree, of selecting a discovered connecting device as a root node, and building a data representation of the tree from the root node, the data representation comprising at least one branch from a respective port of the root node, each branch comprising the identity of the port and the identity of at least one child node on the branch.

Claim 6 (previously presented): The method as claimed in claim 5 wherein, after building the network tree, the method comprises the step of:

determining whether the topology of one or more branches of the tree is unresolved.

Claim 7 (previously presented): The method as claimed in claim 6 wherein the step of determining whether the topology of one or more branches of the tree is unresolved comprises the steps of:

- a) selecting a port of the root node;
- b) considering whether the branch from the selected port has more than one child node, and
- c) if the branch from the port has more than one child node, determining that the branch is unresolved.

Claim 8 (previously presented): The method as claimed in claim 7 further comprising the step of repeating steps a), b) and c) for each port of each discovered connecting device.

Claim 9 (canceled)

Claim 10 (previously presented): The method as claimed in claim 1 wherein the network tree is built using the steps of:

receiving data relating to discovered devices on the network, and  
using the received data to build a network tree.

Claim 11 (previously presented): A computer readable medium including a computer program for determining the topology of a network when a network tree, built from data relating to discovered devices of the network, includes one or more unresolved branches, the program comprising the steps of:

- attempting to determine the type of each of the discovered network devices on an unresolved branch of the network tree;

- inferring that an undiscovered connecting device is present on the unresolved branch if the type of each discovered network device on the branch is determined to be a non-connecting network device; and

- if at least one discovered network device on the unresolved branch is determined not to be a non-connecting network device, leaving the topology of the branch unresolved.

Claim 12 (previously presented): A network management apparatus for determining the topology of a network, the apparatus comprising;

- a memory for receiving and storing data relating to discovered devices on the network;

- a processor, coupled to the memory, the processor configured to build a network tree using the received data, and, for each unresolved branch of the network tree, to attempt to determine the type of each of the discovered network devices on the branch;

- wherein, if the type of every discovered network device on an unresolved branch is determined to be a non-connecting network device, the processor infers that an undiscovered connecting device is present on the branch, and if at least one discovered network device on the unresolved branch is determined not to be a non-connecting network device, the processor does not infer the topology of the unresolved branch of the network.

Claim 13 (previously presented): The network management apparatus as claimed in claim 12 further comprising;

- means for presenting a network map showing the determined topology of the network selected from the group consisting of a display and a printer.